

Claims

1. A radioactive source suitable for use in brachytherapy comprising a radioactive isotope of iodine in the form of iodide ions or an iodine-containing compound, adsorbed on the surface of a substantially non-radiation attenuating substrate, with the proviso that when the iodine is in the form of iodide ions, then the substrate is not an ion exchange resin.
- 10 2. A radioactive source as claimed in claim 1 wherein the substrate plus the adsorbed iodine is sealed within a biocompatible container.
- 15 3. A radioactive source as claimed in claim 2 wherein the container is echogenic.
4. A radioactive source as claimed in any of claims 1 to 3 wherein the isotope of iodine is iodine-125.
- 20 5. A radioactive source as claimed in any of claims 1 to 4 which has an activity in the range of about 200 mCi to about 1200 mCi.
- 25 6. A radioactive source as claimed in any of claims 1 to 4 which has an activity in the range of about 0.1 to about 5 mCi.
- 30 7. A radioactive source as claimed in any of claims 1 to 6 wherein the iodine containing compound is an iodoiodine compound, an organic compound containing a carbon-iodine bond, an iodoso-compound, a diaryliodinium salt, an N-iodoamide, an iodoxy aryl compound or a covalently bonded inorganic iodide compound.

8. A radioactive source as claimed in any of claims 1 to 7 wherein the substrate is carbon, alumina, a zeolite, a titanium oxide, silica, a silicon oxide, a zeolite-type trivalent metal silicate, a metal phosphate, a metal hydroxyphosphate, a glassy material, aluminium nitride, a ceramic, a radiation resistant polymer, bone, coral, coal, limestone, cellulose, starch, agar, gelatin, chitin or hair.

10 9. A radioactive source as claimed in any of claims 1 to 7 wherein the substrate is carbon.

10. A radioactive source as claimed in any one of claims 1 to 9 which further comprises a binder.

15 11. A method for the preparation of a radioactive substrate suitable for use in a brachytherapy source, the method comprising exposing a substantially non-radiation attenuating substrate other than ion-exchange resin to a source of radioactive iodide ions such that the iodide ions are adsorbed onto the surface of the substrate.

12. A method for the preparation of a radioactive substrate suitable for use in a brachytherapy source, the method comprising exposing a substantially non-radiation attenuating substrate to a radioactive iodine-containing compound such that the iodine-containing compound is absorbed onto the surface of the substrate.

25 30 13. A method of treatment of a condition which is responsive to radiation therapy which comprises the temporary placement of a radioactive source comprising a radioisotope of iodine in the form of iodide ions or an iodine-containing compound adsorbed on the surface of a substantially non-radiation attenuating substrate at the site to be treated within a patient for a sufficient

period of time to deliver a therapeutically effective dose.

14. A method for the inhibition of restenosis at a site
5 within the vascular system of a patient which has
previously been subjected to PTCA, the method comprising
the temporary placement of a radioactive source comprising
a radioisotope of iodine in the form of iodide ions or an
iodine-containing compound adsorbed on the surface of a
10 substantially non-radiation attenuating substrate at the
site to be treated within a patient for a sufficient
period of time to deliver a therapeutically effective
dose.

15 15. A radioactive source suitable for use in
brachytherapy comprising a radioactive isotope of iodine
in the form of iodide ions or an iodine-containing
compound adsorbed on the surface of a substantially non-
radiation attenuating substrate, the radioisotope and the
20 substrate being sealed inside a biocompatible echogenic
container.